KISH GRAPHITE INCLUSIONS

Coarse porosity, filled with graphite, appears during machining. There is also free graphite inside shrinkage cavities. The structure is coarse, irregular, and lacks pressure-tightness.

Possible Causes
The same as for G 261 but to a greater degree, permitting the graphite to coalesce into more massive inclusions.

Remedies
Same as for G 261, paying most particular attention to the composition and make-up of the cupola charge (coke ratio, grade of pig iron).

G 262 - Cast Iron
Figure 265
Fragment of a gray iron distributor housing for a hydraulic press. The porosity was discovered during machining; the part leaked and ruptured at the test pressure of 250 daN/cm² (3580 psi).

The melting charge consisted of 40% high-carbon blast furnace pig iron and 60% gates and scrap.

Casting analysis:

<table>
<thead>
<tr>
<th>C</th>
<th>Si</th>
<th>Mn</th>
<th>S</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.66</td>
<td>2.15</td>
<td>0.94</td>
<td>0.056</td>
<td>0.470</td>
</tr>
</tbody>
</table>

Diagnosis: Total carbon content is too high, the eutectic content being about 3.4% for the percentages of silicon and phosphorus present.

Remedy applied: Addition to the charge of 10% of selected steel scrap and 30% of merchant pig containing 2.5% carbon. Carbon content of the castings was reduced to at least 3.4%. The grain structure became fine and uniform and the graphite inclusions disappeared.